

# NISTTech

## Multilayer Thin Film Multijunction Integrated Micropotentiometers

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### Description

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This invention is for determining low voltage output over a wide range of frequencies for ac-dc and RF-dc applications. To meet this need, the micropotentiometer requires physical ruggedness, ability to withstand stresses associated with thermal cycling and in-use exposure to a wide range of temperatures locally, and an error-free structure, e.g., minimization of capacitances or inductances developed between the heater and thermopiles and/or the contact pads.

### Applications

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- **Measure low voltage output**  
Frequencies ranging from low audio to 1 GHz.

### Advantages

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- **The Micropotentiometers features include:**  
Low cost, compact, easy to manufacture, rugged, reliable, mechanically stable, and low current.

### Abstract

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Multilayer, thin film multijunction integrated micropotentiometers are formed in an integral multifilm membrane form over a through opening in a nonmagnetic, dielectric substrate. Through the use of conventional photolithographic and etching techniques, integrated structures are formed to include either single elongate heater elements, bifilar heater elements, or trifilar heater elements with multiple return paths. Multijunction thermopiles and resistors are formed with the heater. The individual layers of silicon oxide or silicon nitride, are formed with conventional chemical vapor deposition, sputtering and other known techniques.

### Inventors

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## References

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- U.S. Patent # 5,287,081
- Docket: 93-013US

## Status of Availability

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This invention is available for exclusive or non-exclusive commercialization licensing. Collaborative research opportunities are available.

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